Geoscience in Vermont

WHAT IS GEO SCIENCE?

Geoscience is the study of the Earth and the complex geologic, marine, atmospheric, and hydrologic processes that sustain life and the economy. Understanding the Earth’s surface and subsurface, its resources, history, and hazards allows us to develop solutions to critical economic, environmental, health, and safety challenges.

By the numbers: VERMONT

- 941 geoscience employees (excludes self-employed)¹
- 37 million gallons/day: total groundwater withdrawal³
- $149 million: value of nonfuel mineral production in 2017⁴
- 43 total disaster declarations, including 21 severe storm, 15 flood, and 2 drought disasters (1953-2017)⁶
- $959,000: NSF GEO grants awarded in 2017¹⁴

ENERGY AND MINERALS IN VERMONT

- $149 million: value of nonfuel mineral production in 2017⁴
- Stone (crushed), sand and gravel (construction), stone (dimension): top three nonfuel minerals in order of value produced in 2017⁴
- 1.21 million megawatt hours: hydroelectricity produced in 2017⁵
- 279,000 megawatt hours: wind produced in 2017⁵
- 129,000 megawatt hours: solar produced in 2017⁵

NATURAL HAZARDS IN VERMONT

- 43 total disaster declarations, including 21 severe storm, 15 flood, and 2 drought disasters (1953-2017)⁶
- $26 million: individual assistance grants (2005-2017)⁶
- 14 weather and/or climate events, each with costs exceeding $1 billion (inflation adjusted) (1980-2017)⁷

WORKFORCE IN VERMONT

- 941 geoscience employees (excludes self-employed) in 2017³
- $64,141: average median geoscience employee salary¹
- 7 academic geoscience departments²

WATER USE IN VERMONT

- 37 million gallons/day: total groundwater withdrawal³
- 50 million gallons/day: total surface water withdrawal³
- 43 million gallons/day: public supply water withdrawal³
- 3 million gallons/day: water withdrawal for irrigation³
- 11 million gallons/day: industrial fresh water withdrawal³
- 61% of the population is served by public water supplies³

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⁴ U.S. Geological Survey, Mineral Commodity Summaries 2018
⁵ U.S. Energy Information Administration
⁶ FEMA Data Visualization: Summary of Disaster Declarations and Grants (accessed May 2, 2018)

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https://www.americangeosciences.org/policy/factsheet/states | govt@americangeosciences.org
Geoscience, Vermont, and Federal Agencies

U.S. GEOLOGICAL SURVEY (USGS)
- $1.15 billion: total USGS budget in FY 2018 (5.8% increase from FY 2017)
- The National Cooperative Geologic Mapping Program funds geologic mapping projects with federal (FEDMAP), state (STATEMAP), and university (EDMAP) partners
- $1.54 million: STATEMAP funding to the Vermont Geological Survey (1993-2016)
- Middlebury College and University of Vermont have participated in EDMAP
- USGS streamgages collect real-time or recent streamflow, groundwater, and water-quality data throughout Vermont

NATIONAL SCIENCE FOUNDATION (NSF)
- $7.8 billion: total NSF budget in FY 2018 (4% increase from FY 2017)
- $1.4 billion: total NSF Geosciences Directorate (GEO) awards in FY 2017 (7.2% increase from FY 2016)
- 7 NSF GEO awards in Vermont totaling $959,000 in 2017
- $807,000: NSF GEO grants to University of Vermont & State Agriculture College in 2017

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
- $8.1 billion: total EPA budget in FY 2018 (0% change from FY 2017)
- 12 active Superfund sites in Vermont in 2018
- $8.24 million: Drinking Water State Revolving Fund (DWSRF) grants in Vermont in 2017
- $200,000: Brownfield cleanup grants awarded to Vermont in 2018

FEDERAL FACILITIES IN VERMONT
- USGS Water Resources Field Office, Montpelier
- NSF/UVM Community Cosmogenic Facility, Burlington

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)
- $20.7 billion: total NASA budget in FY 2018 (5.5% increase from FY 2017)
- $1.9 billion: total NASA Earth Science budget in FY 2018 (0% change from FY 2017)
- Gravity Recovery and Climate Experiment (GRACE) satellites measure groundwater changes in Vermont
- Soil Moisture Active Passive (SMAP) satellite measures soil moisture in Vermont

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)
- $5.9 billion: total NOAA budget in FY 2018 (4.1% increase from FY 2017)
- Next-generation geostationary (GOES) and polar orbiting (JPSS) satellites provide weather forecasting over Vermont
- Deep Space Climate Observatory (DISCOVR) satellite monitors radiation and air quality over Vermont
- 6 National Weather Service Automated Surface Observing Systems (ASOS) stations in Vermont
- 55 National Weather Service Cooperative Observer Program (COOP) sites in Vermont

YOUR STATE SOURCE FOR GEOSCIENCE INFORMATION
Vermont Geological Survey
Main Building - 2nd Floor
1 National Life Drive
Montpelier, VT 05620-3902
http://dec.vermont.gov/geological-survey
802-522-5210

13 U.S. House of Representatives, FY 2018 Omnibus Spending Bill (Division B) - Commerce, Justice, Science, and Related Agencies Appropriations Act, 2018
14 National Science Foundation, Budget Information System
15 U.S. House of Representatives, FY 2018 Omnibus Spending Bill (Division G) – Department of the Interior, Environment, and Related Agencies Appropriations Act, 2018
16 U.S. Environmental Protection Agency, Superfund Sites
17 U.S. Environmental Protection Agency, Drinking Water State Revolving Fund National Information Management System Reports
18 U.S. Environmental Protection Agency, Brownfields Grant Fact Sheet Search